

Title (en)
TOLERANCE RING ASSEMBLY

Title (de)
TOLERANZRINGANORDNUNG

Title (fr)
ENSEMBLE BAGUE A TOLERANCE

Publication
EP 1613869 B2 20140903 (EN)

Application
EP 04727948 A 20040416

Priority
• GB 2004001681 W 20040416
• GB 0308957 A 20030417

Abstract (en)
[origin: WO2004094852A1] A tolerance ring has a band (16) with outwardly extending corrugated protrusions forming waves (2) which engage a surface (8) of the bore (4) in a housing (5). At one end of the tolerance ring is an outwardly flared guide surface (15a, 15b) extending axially from the band (16). The guide surface (15a, 15b) acts as an enlarged entrance to the band (16) for a shaft (3) to be mounted in the bore (4) by insertion into the tolerance ring. The use of the guide surface (15a, 15b) assists assembly and reduces or eliminates particle production. It is also possible for the corrugated portions to extend inwardly, for the guide surface to be inwardly flared, and for the tolerance ring to be mounted on the shaft prior to insertion in the bore.

IPC 8 full level
F16D 1/08 (2006.01); **F16C 35/02** (2006.01); **F16C 35/073** (2006.01); **F16C 35/077** (2006.01); **G11B 5/48** (2006.01); **G11B 33/12** (2006.01)

CPC (source: EP US)
F16B 2/241 (2013.01 - US); **F16C 27/00** (2013.01 - EP US); **F16C 35/02** (2013.01 - US); **F16C 35/07** (2013.01 - US); **F16C 35/073** (2013.01 - US); **F16C 35/077** (2013.01 - EP US); **F16C 43/00** (2013.01 - US); **F16D 1/0835** (2013.01 - EP US); **G11B 5/4813** (2013.01 - EP US); **G11B 25/043** (2013.01 - EP US); **G11B 33/123** (2013.01 - EP US); **F16C 2370/12** (2013.01 - EP US); **F16D 2001/062** (2013.01 - EP US); **G11B 5/4806** (2013.01 - EP US); **G11B 33/12** (2013.01 - EP US); **Y10T 29/49696** (2015.01 - EP US); **Y10T 29/49945** (2015.01 - EP US); **Y10T 403/452** (2015.01 - EP US); **Y10T 403/453** (2015.01 - EP US); **Y10T 403/7047** (2015.01 - EP US); **Y10T 403/7049** (2015.01 - EP US); **Y10T 403/7058** (2015.01 - EP US); **Y10T 403/7061** (2015.01 - EP US)

Citation (opposition)
Opponent :
• GB 414631 A 19340809 - HERMANN FACKLAM
• US 4828423 A 19890509 - CRAMER JR ARTHUR A [US], et al
• US 4981390 A 19910101 - CRAMER JR ARTHUR A [US], et al
• DD 50166 A1 19661025
• WO 0159314 A1 20010816 - SEAGATE TECHNOLOGY LLC [US]
• US 3838928 A 19741001 - WILL W, et al

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2004094852 A1 20041104; AT E454563 T1 20100115; CN 100340784 C 20071003; CN 1774580 A 20060517; DE 602004024971 D1 20100225; EP 1613869 A1 20060111; EP 1613869 B1 20100106; EP 1613869 B2 20140903; EP 2154388 A1 20100217; EP 2154388 B1 20170104; ES 2339020 T3 20100514; ES 2339020 T5 20140929; GB 0308957 D0 20030528; PL 2154388 T3 20170630; US 10203004 B2 20190212; US 10941813 B2 20210309; US 11512742 B2 20221129; US 2006228174 A1 20061012; US 2010321832 A1 20101223; US 2010321833 A1 20101223; US 2015167746 A1 20150618; US 2015184697 A1 20150702; US 2019136913 A1 20190509; US 2021156432 A1 20210527; US 8228640 B2 20120724; US 9004802 B2 20150414; US 9206853 B2 20151208; US 9206854 B2 20151208

DOCDB simple family (application)
GB 2004001681 W 20040416; AT 04727948 T 20040416; CN 200480010331 A 20040416; DE 602004024971 T 20040416; EP 04727948 A 20040416; EP 09013623 A 20040416; ES 04727948 T 20040416; GB 0308957 A 20030417; PL 09013623 T 20040416; US 201514600758 A 20150120; US 201514636550 A 20150303; US 201816235199 A 20181228; US 202117166789 A 20210203; US 55287504 A 20040416; US 87097810 A 20100830; US 87098410 A 20100830